Amendments to the Claims

Claims 1-170 (Cancelled).

171. (New) A thin film of TixQyNz inhibiting metal diffusion from a metal-containing material and formed by sputtering a sputtering target in a nitrogen atmosphere wherein "Q" is a label for said one or more alloying elements; said target comprising Ti and one or more alloying elements having at least one of: (1) a standard electrode potential of less than about -1.0V; (2) a melting temperature of at least about 2400°C; and (3) at least an 8 percent difference in atomic radii relative to titanium.

172. (New) The thin film of claim 171 wherein the metal-containing layer comprises copper.

173. (New) The thin film of claim 171 wherein x=0.1-0.7, y=0.001-0.3, and z=0.1-0.6.

174. (New) The thin film of claim 171 having a thickness of from about 2 nm to about 50nm.

175. (New) The thin film of claim 171 further comprising an electrical resistivity of equal to or less than 300 μΩ•cm.

176. (New) The TixQyNz thin film of claim 171 used as a Cu barrier layer in a microelectronic device.

177. (New) The thin film of claim 171 further comprising a mean grain size of equal to or less than 100 nm, the mean grain size remaining equal to or less than 100 nm after the thin film is exposed to a temperature of at least about 500°C for a time of at least about 30 minutes in a vacuum anneal.

178. (New) The thin film of claim 171 further comprising a mean grain size of equal to or less than 10 nm, the mean grain size remaining equal to or less than 10 nm after the thin film is exposed to a temperature of at least about 500°C for a time of at least about 30 minutes in a vacuum anneal.

179. (New) The thin film of claim 171 further comprising a mean grain size of equal to or less than 1nm, the mean grain size remaining equal to or less than 1nm after the thin film is exposed to a temperature of at least about 500°C for a time of at least about 30 minutes in a vacuum anneal.

180. (New) A semiconductor construction comprising:

a semiconductor substrate;

a material supported by the semiconductor substrate, and into which diffusion of a metal is to be alleviated;

a mass over the material and comprising the metal;

an intervening layer comprising the thin film of claim 171; the intervening layer being between the mass and the material into which diffusion of the metal is to be alleviated; and

the intervening layer alleviating diffusion of the metal from the mass to the material relative to an amount of diffusion that would occur without the intervening layer.

181. (New) A thin film of TixQyNzOw inhibiting copper diffusion from a copper-containing material and formed by sputtering a sputtering target in a nitrogen atmosphere wherein "Q" is a label for said one or more alloying elements; said target comprising Ti and one or more alloying elements having at least one of: (1) a standard electrode potential of less than about -1.0V; (2) a melting temperature of at least about 2400°C; and (3) at least an 8 percent difference in atomic radii relative to titanium.

182. (New) The thin film of claim 181 wherein x=0.1-0.7, y=0.001-0.3, z=0.1-0.6, and w =0.0001-0.0010.